



June 30, 2009

California Energy Commission
Attention: Clare Laufenberg Gallardo
1516 Ninth Street, MS 46
Sacramento, CA 95814

BY EMAIL TO claufenb@energy.state.ca.us – ORIGINAL BY MAIL
Re: Renewable Energy Transmission Initiative Phase 2A report

Dear Ms Laufenberg Gallardo:

The following comments are on behalf of the California/Nevada Desert Energy Committee of Sierra Club.

Context

The various RETI reports make it clear that large utility-scale solar energy, and to a lesser extent large scale wind energy, are the RETI Steering Committee's preferred renewable technologies for meeting the 2020 Renewable Portfolio Standard (RPS) target. Industry likes the economy of scale of huge (many square miles apiece) projects, which requires lots of flat land and abundant sun and wind. Where are these conditions found? In the desert. What are they served by? Transmission lines, which coincidentally are also the bread and butter of many utilities. No matter what one's perspective may be regarding distributed versus centralized renewable energy generation, one thing's clear: the electric industry has drawn a bead on the California desert. Here is the situation as we see it.

The California desert is not a wasteland, far from it. Although subjected to two centuries of mining and grazing, fifty years of military training, and 30 years of ORV use, the great California desert ecosystems -- the Sonoran, Mojave and Great Basin provinces -- are remarkably intact. The inaccessibility and seeming inhospitability of the desert may have worked to its advantage. The Great Basin, Mojave and Sonoran deserts comprise some of the most robust ecosystems and truly awe-inspiring areas to visit in our country, in large part because of their grand scale and wonderful natural character. In a sense, the California desert is one of the last frontiers of the nation.

Thanks to the foresight of previous generations, significant portions of the California desert are forever preserved as parks and wilderness. Today, these preserves are still connected by natural wildlife corridors, essential for the survival of all desert species, especially given the threat of global climate change. Recently, tens of



millions of dollars in private donations, coupled with federal action, have acquired hundreds of square miles of private lands and consolidated them into federal ownership. At the highest levels of government, the avowed intent was to preserve these lands and the landscape level connections between the desert's already preserved areas. But that is all changing; the solar land rush is on.

More than a million acres of public lands throughout the California desert have been staked out by generators and speculators alike, intent on making a killing in the renewable energy game. There is no rhyme or reason to the pattern of applications. In fact the bulk of the applicants for solar (estimates run to 80% or more) are simply speculators, looking to have their applications bought out by real generators. These development applications are for right-of-ways, even though in the case of solar projects there will likely be 100% destruction and/or fragmentation of natural values on the project sites. These applications should be for land leases, not right-of-ways. Furthermore, BLM should have the power to deny unqualified applicants, but this is proving difficult. Thus, the desert is under siege and the system to protect it is broken.

RETI's mission

Into this context, RETI thrust itself couple of years ago. The underlying assumption was that meeting California's 33% RPS would require additional new transmission capacity. The initial intent as we understand it was to be open and transparent, and to "balance" environmental and economic concerns in order to prioritize renewable energy zones (CREZs). The further intent was to use that priority order to plan transmission upgrades. The avowed intent was good, but as memorialized in our prior comments, RETI has had problems fulfilling its charge.

In sum, RETI's Steering Committee is industry dominated, is biased toward large transmission-dependent solutions, has only token voting environmental participation, has strayed from its ostensible mission, and has failed to provide adequate transparency, clarity or opportunity for meaningful public participation. For nearly two years, many environmental organizations and individuals have attempted to follow RETI's complicated process with varying degrees of success, and some have participated as non-voting members on the Environmental Working Group. However, those who disagreed with the environmental process, were often ignored and RETI has forged ahead with an artificial numerical ranking system ill-suited to determine relative environmental merits of the proposed CREZs.

Unfortunately, RETI's promise of prioritizing transmission for the CREZs that were achieved a balance between being the most cost effective and the least damaging environmentally turned out to be largely an illusion. Deciphering the RETI reports is not easy, but it appears that in the draft Phase 2A Report, RETI now proposes to provide transmission to most CREZs regardless, and has given the highest marks to those CREZs that are most economic and where there is the most commercial

interest (read: where the applications are). The “environmental” part has become but a thin veneer, by far outweighed by commercial interests.

CREZ environmental ranking flaws exacerbated

Let me preface these comments by saying that in my forty years of reviewing environmental documents I have never encountered such a difficult system to decipher as the RETI CREZ environmental ranking system. Moreover, the rules keep changing, and foundational information is buried in appendices. I have been trying to follow the RETI process for a year and a half now and still have problems deciphering it; I cannot imagine how the uninitiated could wrap their head around it. The problem is not so much understanding the technical energy and pricing issues, they are fairly straight forward -- it is the environmental ranking that is the problem! The RETI system is contrived, counter-intuitive and lacks conservation biology value.

Additionally, the formulae used to pit the environmental value against commercial interests have become increasingly complicated and cryptic. So please correct me if I have misunderstood the process -- but every indication is that the draft Phase 1B process actually exacerbated the existing problems in the RETI CREZ ranking system.

To start out with, RETI's environmental ranking system for CREZs as defined in the Phase 1 process, was fundamentally flawed. Bent on reducing environmental concerns to numbers, RETI's process devolved into a convoluted exercise that ended up negating the environmental values to be protected. Here's why.

Normally, if a CREZ promised to cut off a major wildlife corridor or risk extirpating a narrow endemic species (and it couldn't be reconfigured to avoid this impact) one would reasonably expect that CREZ to be a “no-go” area environmentally, and be given the lowest environmental score. Shouldn't that be the case? After all, extinction or fragmentation is a fatal flaw environmentally -- nature doesn't hand out any second chances when it comes to these kind of issues.

But according RETI's flawed system, if a CREZ wiped out a wildlife corridor then it was simply given a number in the wildlife corridor box. Then RETI would go on to rate the CREZ for seven other criteria and give it an aggregate score. The problem is that this box is just 1 out of 8 somewhat arbitrarily chosen and weighted environmental criteria. So the significance of the original problem is severely diminished (actually divided by 8, to be exact).

Then what would RETI do with this number? Assuming the CREZ had no other significant concerns, the environmental score for the offending CREZ could be rated only 12½% negative, instead of 100%. In fact, because of this artificial system, a CREZ with one fatal flaw might appear to stack up quite well environmentally against other CREZs which had a number of lesser concerns but no fatal flaw. The

RETI environmental measure could be the opposite of a real world environmental measure. RETI was advised of that fact yet ignored it.

So that's how the environmental ranking system stood at the end of the Phase 1 process, skewed. But things have become more problematic. During the Phase 2A process, RETI decided to apply a whole new set of criteria to "balance" the environmental score against the commercial scores. See the below, a verbatim excerpt from the Phase 2A report:

"03 June 2009 3-4 The CPWG developed four CREZ energy metrics, or rating criteria, to incorporate different dimensions of renewable energy availability. These four criteria are:

1. **Criterion A:** Total CREZ energy potential (the **Total Energy** column in Table 3-3, and in criteria formulas below);
2. **Criterion B1:** Total CREZ energy weighted by CREZ adjusted economic scores (**Phase 2 Adj EconScore** in Table 3-3 and in criteria formulas below);
3. **Criterion B2:** Total CREZ energy weighted by CREZ adjusted environmental scores (**Phase 2 Adj EnviroScore** in Table 3-3 and in criteria formulas below);
4. **Criterion C:** CREZ energy having known commercial interest."

As far as one can decipher, in this new process the already emasculated environmental score from Phase 1 is apparently

1. "adjusted" (whatever that means) then
2. only used to "weight" the total CREZ potential energy
3. then this value is essentially cut in half, since it shares a criterion with 3A
4. then pitted against three commercial values to somehow come to a ranking

So what was 1/8th [one out of eight original criteria] of an appropriate adverse environmental score initially, has been "adjusted" and then split down to merely a tiny fraction of what it should have been if it represented the appropriate environmental value of the CREZ. Then this severely diminished value was weighted against three other criteria which have nothing to do with environmental issues and everything to do with profitability and accommodating existing applications. So a super-fractionalized and diminished environmental score is now competing with three other values! The formulas used are cryptic, the values are buried in appendices, and the application is of dubious value, unless one wants to ignore environmental concerns. It surely doesn't take a rocket scientist to know that such fractionalized and marginalized values do not adequately balance real environmental concerns against commercial concerns. RETI's "balancing" of environmental and economic concerns is a complete farce. In no way does it indicate even the relative environmental rankings of the CREZs.

On the other hand, RETI's exclusion zones actually made some environmental sense. The problem is, they don't materially afford any more protection than that afforded by law or policy. RETI would be well advised to use the criteria developed among virtually all the major national and regional conservation organizations concerned with the desert. The consensus environmental document *Renewable Siting Criteria for California Desert Conservation Area* (hereafter "Consensus Criteria") has been previously submitted to RETI. As opposed to RETI's arbitrary environmental criteria, skewed numbers, and arcane formulae, the Consensus Criteria are logical, understandable and effective. The Consensus Criteria suggest real-world opportunities and constraints in the desert, and would lead to real-world results that should produce broad environmental and community buy-in.

Transmission ranking process was superior to CREZ ranking, but needs clarification

Although it was a very rushed and somewhat superficial process, the expert environmental review exercise for transmission was a vast improvement over the artificial method used for CREZs. One must question the validity of ranking such values as visual impacts in such a hurried exercise. However, while imperfect, the identification of concerns was overall much more reliable than previous RETI ranking exercises. There remains a need for clarification, though. It is difficult to discern how the actual numerical rankings were determined, and by whom, and with what additional inputs? What is the meaning of the environmental score given? How is it applied and to what effect? The text of the report should clearly spell out all steps in the ranking process so it can be adequately reviewed.

What is more troubling is that RETI has not made a commitment to proposing only those line segments and routes reviewed by the expert panels. Digging into the appendices raises more questions than it answers in this regard. It becomes ambiguous whether or not RETI is espousing lines whose routing it has not reviewed. For instance, during expert review neither Devers to Victorville ("foundation" line) nor Devers to Century were proposed to involve designating a new transmission corridor. So clearly neither of these segments constituted the controversial high desert or front country routes of Green Path North. It appears that both segments were rated as relatively benign environmentally. So far, the logic tracks. But in Appendix G, RETI describes Green Path North, which also goes from Devers to Victorville, as having numerous alternative routings. So, unless RETI intends to review and score all those alternatives, it should clarify that routes not reviewed are routes not proposed by RETI.

There is another puzzling aspect of RETI's transmission proposals. Unless, I'm mistaken, nowhere in the maps or text does one find Sunrise Powerlink, except in passing at 3-50, under the discussion on the LEAPS group and the Imperial group. So, is RETI still assuming Sunrise Powerlink as part of its renewable energy transmission plan? If so, why isn't it shown on the maps? Please clarify.

Analysis of a possible alternative

If, indeed, RETI is correct that a beefed up connection between the I-10 and parts north is truly essential, then why has it not analyzed the already-designated Desert Center corridor as a fallback in case the more benign route it has reviewed is rejected by the utilities? Must all roads (transmission lines) lead to (and from) Devers?

At two RETI meetings, I or others inquired if the federally designated utility corridor from Desert Center to Iron Mountain would be included in the prospective transmission corridors under review by RETI, in case the only other choice were a new, currently undesignated corridor such as the Green Path North high desert route. No response has been forthcoming and the draft report is mute on the subject, although one map does show the existing 220KV line in that corridor, but no further analysis. Perhaps RETI is sure that the Devers-Victorville route using the I-10 west (the one it has reviewed) is a slam dunk and that the Desert Center alternative is definitely not needed as a north/south connection.

But if this is not the case, then it is incumbent upon RETI to consider the federally designated corridor from Desert Center, in preference to any iteration of Green Path North that creates a new high-voltage transmission corridor in the desert. Use of an already designated corridor with an existing utility in it is vastly environmentally preferable to creating entirely new corridors through the desert. A conflict with the 1994 expansion Joshua Tree National Park could be largely avoided by swinging the corridor out for a few miles to avoid it.

RETI is biased toward solar thermal generation and against distributed PV

In Spring 2008 RETI proposed that approximately half of the net short should be met by solar thermal power (verbal communication, Riverside Plenary Meeting). More recently, RETI was prodded by unrelenting comments urging reevaluation of the potential for more distributed PV, to take another look at distributed PV's potential. In putting together its response, RETI projected a mix of technologies, with solar thermal projected to produce 43% of the megawatts required (Feb 15, 2009 draft revised need assessment). Thus RETI has shown continued to demonstrate a strong preference for this technology, and the RETI CREZs and transmission plans reflect this preference. Is this wise? Is it entirely justified?

Apparently the California Public Utilities Commission (CPUC) doesn't think so. CPUC recently released *33% Renewables Portfolio Standard Implementation Analysis Preliminary Results*. This report characterizes underestimating demand reduction and over-reliance on transmission-dependent solar thermal as risky and potentially more expensive than other approaches, saying "The interplay between energy efficiency achievement and renewable energy procurement highlights the need to analyze and plan for the interactions among the state's various policy goals. If the state does not

plan for interactions, then a 33% RPS by 2020 could result in a surplus of energy or capacity and excess consumer costs.” Notably, the document states:

“Specifically, California’s current procurement path is focused almost solely on central station renewable generation that is dependent on new transmission. In order to mitigate the risk that one resource zone would fail to develop, thereby delaying the achievement of a 33% RPS by several years, the state should consider a procurement strategy that adequately considers the time and risk, in addition to price, associated with particular renewable generation resources.”

The report goes on to recommend, among other things, **“Pursuing procurement, such as distributed solar photovoltaics (PV), which is not dependent on new transmission.”**

Another quote: **“Dramatic cost reductions in solar PV could make a solar DG strategy cost-competitive with central station renewable generation. More analysis is necessary to determine the programmatic strategies necessary to achieve a high-DG scenario as well as the feasibility of high penetrations of solar PV on the distribution grid.”**

Link to the CPUC report is as follows

<http://docs.cpuc.ca.gov/PUBLISHED/GRAPHICS/102354.PDF>

Please address.

Additionally, RETI’s recent analysis (of the potential for distributed PV to play a larger role in reaching the net short) is simply rife with errors, from grossly understating world production of PV to setting a higher bar for PV than for solar thermal. Please see the attached analysis (“RETI, problems with PV analysis”) from *Desert Report*, and please respond. It is especially interesting to note that RETI’s argument against PV that there is a limited deployment and production of PV and therefore PV cannot ramp up quickly enough to provide a substantial contribution to meeting the 33% 2020 goal. However, RETI does not put thermal solar to the same test. There exist far less MW of solar thermal energy production, and very little experience with thermal storage, yet RETI places great faith in solar thermal’s ability to ramp up quickly and its untested storage’s long term reliability.

Speaking of reliability, does RETI have an explanation of why the allegedly successful solar thermal power tower array and much of the solar thermal trough power plant in Daggett have been abandoned and are in complete disuse after a short life? There is available water for cooling, there is natural gas to help warm the salt in the morning and jump start the turbines, and the solar fuel is free. These plants should be proverbial gold mines of cheap electricity. So why are these multimillion dollar installations not continuing to churn out reliable and cheap energy?

In its recent projection of technology mixes, RETI allocates solar thermal with storage a 40% production factor. That is, REI asserts the projected 6500 MW of solar thermal would produce 22,776,000 MW hours a year. None of the existing

solar thermal plants operating in California appear to have nearly that high a production factor. How did RETI arrive at this 40% factor? Is this factor reflected in RETI's estimate of the average acreage needed per MW for solar, or would one need to add more acreage to achieve a 40% factor? How much more? Does RETI's price estimate for solar thermal reflect this 40% factor? In other words, RETI is touting solar thermal as being cheaper and less land consumptive per unit of energy than is PV, AND as having a generous 40% factor – are all these assertions consistent across the board?

Additionally, in pursuing solar thermal, RETI has arbitrarily cut off consideration of areas with less than 6.0 insolation. This effectively excludes areas in the Central Valley which might otherwise produce renewable energy close to load centers, and have efficiency advantages over plants in hotter desert areas. Perhaps solar plants in these excluded areas could potentially reduce transmission costs and losses as well as increase the efficiency of the plants on hot summer days, which might balance out the difference in insolation.. Please analyze this potential.

Finally, RETI exhibits a bias for solar and against wind energy. The footprint of wind projects is calculated as having a 100% impact on wildlife corridors, etc. This is curious, since it is obvious that wind turbines do not have nearly the ground coverage of solar arrays. Solar arrays not only “blade” but the “shade” the desert, effectively type-converting the entire project footprint. Could it be that RETI is using the “precautionary principle” in the case of wind? That is, does RETI choose to err on the side of protection as opposed to development in the case of wind energy? If so, that is great. But RETI should level the playing field, and extend the precautionary principle to all sources of renewable energy, and start by utilizing the Consensus Criteria to rank the desert primarily solar CREZs, and then balance that ranking evenly against energy potential and cost in order to more fairly and accurately prioritize CREZs in accordance with its original mission.

RETI's net short calculation is still high

Hammered by comments pointing out that the draft Phase 1B report overestimated the net short (the amount of new renewable generation needed to meet the 2020 RPS), RETI recalculated the net short for the final Phase 1B Report. The revised net short estimate came down significantly, but it is still way too high. For one thing, RETI's revised net short used an outdated CEC forecast, and RETI failed to acknowledge that fact, as well as the fact that a new one was imminent. Like many other RETI actions, this conduct fails to qualify as transparent. Also, RETI persisted in ignoring the energy efficiencies that are now mandated by the state, in spite of the fact that these efficiency mandates were called to RETI's attention repeatedly. This is very telling, for it is the same approach that utilities are wont to take: to ignore state efficiency mandates in their procurement plans. Now we see RETI doing the same thing.

In any event, attached is a June 2009 CEC staff report on the effects of AB 32 which,

when taken in context with the draft CEC 2010 forecast, “significantly reduced the total amount of grid-connected renewables needed to meet the renewable target of 33% of retail sales.” It appears that the net short forecast is will likely be thirty-something thousand megawatt hours, not the 60-something thousand megawatt hours RETI originally proposed or the 59-plus thousand in its recent revision. What this translates to is greatly reduced pressure to industrialize vast areas of the desert in the pursuit of large utility-scale solar and wind projects to meet the 2020 goals. It means there is in effect more time to see whether the promise of affordable distributed PV comes to fruition and/or to implement feed in tariffs or other policy programs promoting distributed energy. Even staying with the portfolio of technologies proposed by RETI, it would be far easier to ramp up 3500 MW of solar thermal in ten years than to ramp up 6500 MW, and it can be done with more selectivity as to siting these projects appropriately. The reduced net short also reduces the need for new transmission. The accuracy of the net short is paramount and needs to be addressed.

An additional issue: the draft RETI report begrudgingly admits that 4200 MW of distributed PV will probably be developed by 2020 (a low estimate in our view) and contends that none of this 4200 MW will be used directly by utilities for meeting RPS goals. Why is that? And how does this assertion jibe with the Go Solar’s provision (under the Publicly Owned Utilities program) of \$700 million for 700 MW of PV? Does it jibe with the CPUC’s recommendation to investigate greater distributed PV procurement, above?

Disturbed lands/adjacency to urbanized areas

Per the Consensus Criteria, (and the original intentions expressed by RETI) the “disturbed lands” approach to developing renewable energy (especially solar energy) is preferable. However as pointed out in our prior comments during Phase 1B, RETI excluded all farmland from the definition of “disturbed.” We understand that now RETI has mapped some marginal or abandoned farmland. That is surely a step in the right direction. However, as recommended above, there needs to be a whole new approach to RETI’s environmental assessment, working out from the urbanized areas first, and leaving the desert core areas intact unless and until it becomes necessary to use them. Currently, there are RETI-proposed CREZs that slice right through the desert’s core. Additionally, RETI’s long linear CREZs are generally more disruptive than would be compact polygons. The RETI CREZs tend to resemble giant amoebas, with long appendages stretching across vast areas and fragmenting everything in their path. This runs counter to the basic tenets of conservation biology and is a fatal environmental flaw.

Alternatives not adequately considered

So far, RETI has resisted the notion of increased reliance on distributed PV at load

centers to meet the 2020 RPS directly or indirectly. It is important to note that there is no urban advocate on the RETI steering committee. There should be. It is incumbent on RETI to consider the socio-economic benefits of smaller utility scale solar in urban areas. SCE 's Ontario project is an example of using existing structures, a labor force that urgently needs work, and a system that avoids or minimizes the need for expensive new transmission. This appears to be a win/win approach that merits full consideration. Additionally, RETI has failed to fully explore the 20MW-or-less-PV-at-substation alternative to determine what level of deployment may prove feasible and cost effective. Instead, RETI simply performed the faulty all-or-nothing thin film PV analysis critiqued above. Surely RETI can do better.

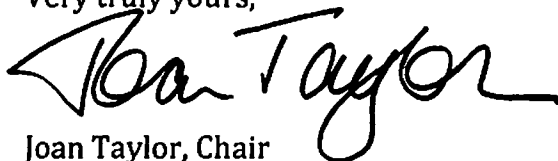
Conclusion

While surely flawed from an environmental perspective, RETI's reports have nonetheless served a purpose. They have compiled some useful information on renewable technologies. RETI outlines a renewable scenario that best serves the financial interests of the electric industry, although probably not optimal for the consumer and much more problematic than need be for the environment. Although RETI probably overstates the need for large transmission dependent renewable projects, there is a place for such projects in the energy mix if sited carefully.

As shown above, much needs to be done to fully vet the potential for distributed PV to meet a more significant portion of the RPS target. Much work also remains to be done to reconcile RETI's proposed CREZs and BLM proposed Solar Energy Study Zones with the Consensus Criteria, to the extent that large, remote solar projects are needed and appropriate. Surely some will be sited in the near future; but whether solar thermal is the panacea for renewable generation remains to be seen.

We continue to recommend that RETI improve its methods, analysis and recommendations if it is to fulfill its stated mission. Thank you for the opportunity to comment.

Very truly yours,

A handwritten signature in black ink, appearing to read "Joan Taylor". The signature is fluid and cursive, with a large initial "J" and "T".

Joan Taylor, Chair
California/Nevada Desert Energy Committee